

Amendments to the Abstract:

The abstract of the disclosure has been amended in the following manner:

A method of manufacturing hollow, fiber reinforced thermoplastic composite articles, such as a pressure vessel, is ~~disclosed~~ provided. The thermoplastic binder is chosen to bind the reinforcing fibers together, to provide strength, and to provide ease of manufacture. The method includes placing a preform with an inflatable core into a mold, pressurizing the inflatable core, and heating the mold to enable the thermoplastic binder to melt and distribute throughout the preform, binding the reinforcing fibers. The article is then cooled and removed from the mold, resulting in a hollow molded article. The inflatable core may be removed from the article and reused, or the core may become an integral part of the finished article.

Attachment: Replacement Sheet (clean-copy of abstract)

ARGUMENTS/REMARKS

Applicants would like to thank the examiner for the careful consideration given the present application. The application has been carefully reviewed in light of the Office action, and amended as necessary to more clearly and particularly describe and claim the subject matter which applicants regard as the invention.

In the specification, the paragraph [0049] has been amended to correct minor editorial problems.

The Examiner objected to the Abstract. A new Abstract has been provided with this response. The Examiner objected to the Title. A new title has been provided in this response. The Examiner objected to the Drawings. However, the correction of the error of paragraph [0049] has made the objection moot.

Claims 1-34 remain in this application. Claims 35-37 have been added without adding any new matter.

Claims 1-4, 8-19, 21-24, 27-29, and 31 were rejected under 35 U.S.C. §102(e) as being anticipated by LeBreton (U.S. 6,660,214 B2). Claims 5-7 were rejected under 35 U.S.C. §103(a) as being unpatentable over LeBreton in view of Wiltshire (U.S. 4,101,254). Claims 15-26, 30, and 32-34 were rejected under 35 U.S.C. §103(a) as being unpatentable over LeBreton in view of Murphy (U.S. 6,171,423). For the following reasons, the rejections are respectfully traversed.

The Lebraton '214 reference is by the same inventor as the current application, and thus cannot be cited against the application under 35 U.S.C. §102(e). Applicant will provide a Declaration or Affidavit, in due course, stating that the application and the cited reference are both invented by the applicant. Accordingly, the rejections are moot.

Claims 1-5, 11, 13, 15, 21, 23 and 25-30 were rejected under 35 U.S.C. §102(b) as being anticipated by Murphy *et al.* (U.S. 6,171,423 B1). Claims 3-9 and 12 were rejected under 35 U.S.C. §103(a) as being unpatentable over Murphy in view of Wiltshire (U.S. 4,101,254). Claim 14 is rejected under 35 U.S.C. §103(a) as being unpatentable over Murphy in view of Carter *et al.* (U.S. 2003/0111473 A1). Claim 18

was rejected under 35 U.S.C. §103(a) as being unpatentable over Murphy in view of Lankheet (U.S. 4,267,142). Claims 19-20 were rejected under 35 U.S.C. §103(a) as being unpatentable over Murphy in view of Reyes (U.S. 6,010,411). Claim 22 was rejected under §103(a) as being unpatentable over Murphy in view of Reyes and further in view of Carter. Claim 31 was rejected under §103(a) as being unpatentable over Murphy in view of Wiltshire, and further in view of Carter and Reyes. Claim 33 was rejected under Murphy in view of Wiltshire, and further in view of Reyes. For the following reasons, the rejections are respectfully traversed.

Claim 1, as amended, recites a "hollow preform comprised of a plurality of discrete reinforcing fibers intimately intermixed with a plurality of discrete thermoplastic fibers". Claim 27 has similar limitations at step (a)(i). The cited reference does not teach such a preform.

Instead, Murphy teaches that a liner/mandrel may contain a reinforcing fiber impregnated with a thermoplastic material (col. 4, lines 52-67) or wound with a thermoplastic filament. However, there is no suggestion that the reinforcing fibers of Murphy are *intermixed* with discrete thermoplastic *fibers*, as recited in the claim. Thus, claims 1 and 27 are patentable over the reference.

Claims 2-26, which depend, directly or indirectly, on claim 1, are thus patentable over Murphy for at least the same reasons as claim 1. Claims 28-30, which depend, directly or indirectly, on claim 27, are thus patentable over Murphy for at least the same reasons as claim 27.

Further, the additional cited references do not overcome the shortcomings of Murphy discussed above, and thus the rejections based on those references for the above cited claims are moot and need not be individually addressed, although applicant traverses each and every such rejection. Furthermore, the Examiner has not provided legally sufficient motivation for combining these references with the base reference, and thus the rejections for obviousness are not proper, as is discussed later in this paper.

Claim 31 recites a preform of "glass reinforcing fibers approximately one inch long intimately intermixed with thermoplastic fibers approximately two inches long".

The Examiner cites Wiltshire as teaching the cited limitations. However, Wiltshire does not teach using thermoplastic fibers. Instead, Wiltshire teaches spraying a thermoplastic resin onto reinforcing fibers (see col. 3 lines 32-34). Further, the Examiner points to a ratio of resin to fiber material as teaching ratio lengths (see col. 2, line 23). Nowhere does the reference suggest that the 60/40 ratio of resin to fiber is a ratio of lengths. In fact, the reference does not even suggest the use of thermoplastic fibers. Thus, the reference does not teach that for which it was cited, and thus claim 31 is patentable over the references, even if combined. Claim 32, which depends on claim 31, is thus patentable over the references for at least the same reason as claim 31.

Claim 33 recites a "hollow preform of glass reinforcing fibers intermixed with thermoplastic material, said preform having a filament wound cylindrical sidewall portion, a filament wound domed bottom portion, and a filament wound domed top portion, wherein said cylindrical sidewall portion overlaps each geodesic domed portion".

The Examiner cites Wiltshire as teaching this element of claim 33. However, Wiltshire does not teach overlapping a sidewall portion having reinforcing fibers *intermixed with thermoplastic material* with domed portions. The mat and end performs of Wiltshire are not intermixed with thermoplastic material. Instead, they are merely of reinforcing fibers. Only after overlapping is the binding resin applied (see col. 1, lines 12-18 and 31-35). Thus, the claim language does not read literally on the references or the combined teaching, and thus claim 33 is patentable over the references. Claim 34, which depends on claim 33, is thus patentable over the references for at least the same reasons as claim 33.

Further, the Examiner has not provided the proper motivation for combining the references. The burden is on the Examiner to make a prima facie case of obviousness (MPEP §2142). To support a prima facie case of obviousness, the Examiner must show that there is some *suggestion* or *motivation* to modify the reference (MPEP §2143.01). The mere fact that references *can* be combined or modified, alone, is not sufficient to establish prima facie obviousness (*Id.*). The prior art must also suggest the *desirability* of the combination (*Id.*). The fact that the claimed invention is within the *capabilities* of one of ordinary skill in the art is not sufficient, by itself, to establish prima facie obviousness (*Id.*).

The Examiner has cited no support for any such suggestion or motivation for the combination from within the references, and neither does the Examiner provide any references supporting any motivation to modify the reference(s) by making the combination.

Merely listing an advantage or benefit of the combination is not sufficient, as some rationale for combining the references must be found in the references themselves, or drawn from a convincing line of reasoning based on established scientific principles practiced by one skilled in the art that some advantage or beneficial result would be produced by the combination (MPEP §2144). Such motivation cannot be found in the application itself, as such hindsight is impermissible; the facts must be gleaned from the prior art. (MPEP §2142, last paragraph).

"To reach a proper determination under 35 U.S.C. 103, the examiner must step backward in time and into the shoes worn by the hypothetical 'person of ordinary skill in the art' when the invention was unknown and just before it was made [and] the examiner must then make a determination whether the claimed invention '*as a whole*' would have been obvious at that time to that person." (MPEP §2142, emphasis added). It is not proper to merely combine various elements from various references. The invention must be obvious "as a whole", not as a piecemeal combination of elements from various references.

Accordingly, the rejections for obviousness are not supported by the Office action and thus the rejection is improper, and should be withdrawn.

Finally, new claims 35-37 have additional limitations not found in any of the references.

In consideration of the foregoing analysis, it is respectfully submitted that the present application is in a condition for allowance and notice to that effect is hereby requested. If it is determined that the application is not in a condition for allowance, the examiner is invited to initiate a telephone interview with the undersigned attorney to expedite prosecution of the present application.

Appl. No. 10/074,449
Amdt. Dated July 12 2004
Reply to Office action of March 12, 2004

If there are any additional fees resulting from this communication, please charge same to our Deposit Account No. 16-0820, our Order No. 32285.

Respectfully submitted,

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